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EXAMINER CHOL PETER Y				
ART UNIT		PAPER NUMBER		
1786				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/594,283

Applicant(s)

PENALVA, JOAQUIN ESPUELAS

Examiner

PETER Y. CHOI

Art Unit

1786

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2010.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 56-69 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 56-69 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 26 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 11, 2010, has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 58, 60, and 66 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 58, 60 and 66, each of the claims recite a biocidal compound, 1-bromo-3-chloro-5.5-dimethyldantoin. Applicant's specification, as originally filed, does not set forth 1-bromo-3-chloro-5.5-dimethyldantoin. Although Applicant acknowledges the spelling error in Applicant's remarks of May 11, 2010, it is recommended that Applicant amend the specification to correct the error.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 56, 57, 59, 61-65, and 67-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,514,306 to Rohrbach.

Regarding claims 56, 59, 62, 63, 68, and 69, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSAN™, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a mixture of non-woven fabrics (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (see Applicants' specification at page 24).

Regarding claims 56, 59, 62, 63, 68, and 69, the prior art does not appear to specifically teach that the filter is used for filtration and elimination of *Legionella Pneumophila* in any installation at risk from *Legionella Pneumophila* proliferation and that the filter eliminates

Legionella Pneumophila. However, a preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention, the invention of the prior art appears to be capable of performing the claimed intended use.

Regarding claims 56, 59, 62, 63, 68, and 69, the prior art does not appear to specifically teach that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C. Although the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed anti-bacterial properties since the prior art teaches an invention with a substantially similar structure and chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicant to prove otherwise.

Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

Regarding claims 56, 59, 62, 63, 68, and 69, the prior art teaches that the filter includes one or more layers of a fibrous media that accomplishes the actual filtration (Id., column 3 lines 48-55). Although the prior art does not appear to specifically teach that the filter is further defined as being constructed of at least two layers of nonwoven fabrics so as to form a sandwich of layers, it naturally flows from the teachings of the prior art that forming the filter having multiple layers, such as more than one layer, three or four or five layers, increases the thickness, strength and rigidity of the filter, in addition to increasing the filter and/or barrier properties of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, wherein the filter comprises three or four or five nonwoven layers, as the prior art suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a conventional filter having increased thickness, strength and rigidity suitable for the intended application.

Alternatively, it should be noted that since the prior art teaches that the filter may comprise one or more layers of fibrous media, in addition to a support member, it would have additionally been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, comprising multiple layers of identical and/or substantially similar nonwoven mats, motivated by the desire of forming a conventional filter having additional support layers to predictably increase the weight, thickness and dimensional stability of the resulting filter, based on the intended application.

Regarding claims 57, 61, 64, and 65, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSAN™, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a non-woven fabric and a component selected from at least polyester (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Additionally, it should be noted that since the prior art teaches that the filter may comprise one or more layers of fibrous media, in addition to a support member, it would have additionally been obvious to one of ordinary skill in the filter art at the time the invention was

made to form the filter of the prior art, comprising multiple layers of identical and/or substantially similar nonwoven mats such as polyester nonwoven mats, motivated by the desire of forming a conventional filter having additional support layers to predictably increase the weight, thickness and dimensional stability of the resulting filter, based on the intended application.

Regarding claims 57, 61, 64, and 65, the prior art does not appear to specifically teach that the filter is used for filtration and elimination of *Legionella Pneumophila* in any installation at risk from *Legionella Pneumophila* proliferation and that the filter eliminates *Legionella Pneumophila*. However, a preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSANTM anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention, the invention of the prior art appears to be capable of performing the claimed intended use.

Regarding claims 57, 61, 64, and 65, the prior art does not appear to specifically teach that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C. Although

the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed anti-bacterial properties since the prior art teaches an invention with a substantially similar structure TRICLOSAN™ chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicant to prove otherwise.

Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

Regarding claim 59, the antibacterial compound selected from the group is Triclosan (column 4 lines 54-67). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claim 61, the antibacterial compound selected from the group is Triclosan (column 4 lines 54-67). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claim 62, the fiber is a synthetic polymer chemical fiber (column 5 line 1 to line 55).

Regarding claim 64, the fiber is a synthetic polymer chemical fiber (column 5 line 1 to line 55).

Regarding claims 63 and 65, the prior art teaches that the thermoplastic polymer is typically a polyolefin. Additionally, polyolefins commonly known in the art include polyethylene and polypropylene. Additionally, the prior art expressly incorporates by reference USPN 5,057,368 to Largman as teaching a fiber suitable to practice the invention of the prior art. Largman teaches at column 7 line 64 to column 10 line 40 that the fiber may comprise a polyolefin such as polypropylene and that the fibers are suitable for use in filters. Therefore, the prior art appears to teach the claimed polypropylene fiber. Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers are polypropylene fibers, as the prior art teaches that the polypropylene fibers of Largman are suitable to practice the invention of the prior art, and as it is within the level of ordinary skill to choose a suitable commercially available polyolefin such as polypropylene, based on the desired characteristics of the fiber, such as strength and formability.

Regarding claim 67, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSAN™, wherein the fibers are thermoplastic polymers such as polyamides, polyesters,

polyolefins or combinations thereof, and wherein the filter is further defined as being constructed from a non-woven fabric and a component selected from at least polyester (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (see Applicants' specification at page 24).

Additionally, it should be noted that since the prior art teaches that the filter may comprise one or more layers of fibrous media, in addition to a support member, it would have additionally been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, comprising multiple layers of identical and/or substantially similar nonwoven mats such as polyester nonwoven mats, motivated by the desire of forming a conventional filter having additional support layers to predictably increase the weight, thickness and dimensional stability of the resulting filter, based on the intended application.

Regarding claim 67, the prior art does not appear to specifically teach that the filter is used for filtration and elimination of *Legionella Pneumophila* in any installation at risk from *Legionella Pneumophila* proliferation and that the filter eliminates *Legionella Pneumophila*. However, a preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). A recitation of the intended use of the claimed invention must result in a

structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention, the invention of the prior art appears to be capable of performing the claimed intended use.

Regarding claim 67, the prior art does not appear to specifically teach that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C. Although the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed anti-bacterial properties since the prior art teaches an invention with a substantially similar structure and chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicant to prove otherwise.

Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

Regarding claim 68, the sandwich further includes a non-woven fabric support (column 3 lines 40-46). Additionally, it naturally flows from the teachings of the prior art that forming the filter having multiple layers, such as three or four or five layers, increases the thickness, strength and rigidity of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, further including a nonwoven fabric support layer, as the prior art suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a conventional filter having increased thickness, strength and rigidity suitable for the intended application.

Regarding claim 69, the fibers are approximately 30 microns in diameter, may have a cross-section such as circular, hollow, multiple lobal, trilobal or similar, an elongated length or a filament (Rohrbach, column 5 line 1 to column 6 line 4). It should be noted that Rohrbach expressly incorporates by reference USPN 5,057,368 to Largman as teaching fibers within the scope of the prior art invention, wherein Largman teaches the use of filaments, which are known in the art as comprising continuous and/or indefinite length.

Additionally, it should be noted that a color from translucent white to black and any combinations thereof, reasonably constitutes all color ranges for fibers and/or filaments, and it is reasonable for one of ordinary skill to expect that the fiber necessarily comprises a color within the claimed range. Alternatively, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, and determining a

suitable color for the fiber, as it is within the level of ordinary skill to determine a suitable fiber color based on the desired aesthetics of the resulting filter.

Additionally, although the prior art does not appear to specifically disclose a fiber weight in the range of from 5 to 2,500 grams, it is reasonable for one of ordinary skill in the art to expect that fiber weight is based on the composition of the fiber in addition to the diameter and length of the fiber. Additionally, forming a filter with a longer and larger diameter fiber would reasonably result in a stronger, less flexible, thicker, and heavier fiber and resulting filter. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, and further adjusting the weight of the fiber within the claimed ranges, motivated by the desire of forming a conventional filter having the desired strength, flexibility, dimensional stability, and weight suitable for the intended application.

Additionally, although the prior art does not appear to disclose the claimed fusion point in the range of from 60° C to 450° C, the prior art teaches identical and/or substantially similar fibers as the fibers disclosed in Applicant's specification pages 29-33. Therefore, it is reasonable for one of ordinary skill in the art to expect that the claimed property naturally flows from the structure in the prior art, since the prior art teaches an invention with a substantially similar structure and chemical composition as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicant to prove otherwise.

6. Claims 58, 60, and 66, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach, as applied to claims 56, 57, 59, 61-65, and 67-69 above, in view of US Pub. No. 2003/0031687 to Falder, USPN 2,920,997 to Wolf and USPN 5,603,941 to Farina.

Regarding claims 58 and 60, the prior art appears to suggest that the various embodiments of the prior art may additionally comprise multiple anti-microbials, as the prior art recites that the filter comprises at least one anti-microbial agent in combination (Rohrbach, column 3 line 63 to column 4 line 6). Additionally, Rohrbach suggests that anti-microbial agents include any substance or combination of substances capable of either preventing, slowing or stopping the growth and/or proliferation of any type of microbial population, such as, but not limited to bacteria, fungi and the like. The prior art does not appear to specifically teach that the filter further comprises the claimed biocide.

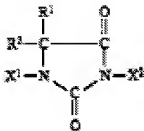
Falder additionally teaches anti-microbials which may be used in filters (Falder, paragraphs 0001-0032, 0045-0087, 0090-0101, 0250-0285, Tables 13-15). Falder acknowledges that microbial colonies replicate rapidly to form colonies, forming biofilms on any substrate surface exposed to bacteria and some amount of water (Id., paragraphs 0002 and 0003). Falder discloses that biofilms are more hazardous to health than individual microorganisms (Id.) and that biofilms can be formed by a single bacterial species, or several species of bacteria and fungi (Id.). Falder discloses and suggests that anti-microbial agents vary in their effectiveness as they are only effective against certain microorganisms (Id., paragraph 0025), which entails that their use is limited as they are not effective against all types of microorganisms (Id.).

Wolf teaches a class of fungicides comprising 1,3-dihalohydantoin (Wolf, column 1 line 16 to column 4 line 26). Wolf teaches that the fungicidal compositions comprise hydantoin of the formula:



Wherein X is a halogen such as chlorine or bromine and R and R' may comprise alkyl groups such as methyl groups (Id., column 1 line 22 to column 3 line 16). Wolf teaches that the fungicide can be applied to surfaces of cloths, textiles and woven fibers, wherein the fungicide is interspersed between the fine structure of the materials and is in intimate contact with the materials (Id., column 3 lines 17-74).

Additionally, Farina similarly discloses a composition comprising dihalogenated hydantoin which is used to remove or inhibit the formation of biofilms (Farina, column 1 line 7 to column 4 line 27). Farina teaches that the composition uses biocides to enhance overall biocidal control, as biocides prevent the growth of, inhibit the growth of, or kill microorganisms (Id., column 1 line 55 to column 2 line 29). Farina teaches that dibromohydantoin, dichlorohydantoin, or bromochlorohydantoin are most preferred having the formula:



Wherein R^1 and R^2 are independently methyl or ethyl and X^1 and X^2 are independently chlorine or bromine, such as bromochloro-5,5-dimethylhydantoin (Id., column 2 line 30-48). Farina teaches that any substrate susceptible to the formation of biofilms and/or growth of microorganisms is suitable for treatment with the aforementioned compositions (Id., column 4 lines 11-24).

Based on the totality of the teachings of the prior art, it would have been obvious to one of ordinary skill in the anti-bacterial fabric art at the time the invention was made to form the anti-bacterial fabric of the prior art, wherein the anti-bacterial fabric additionally comprises a biocide such as bromochloro-5,5-dimethylhydantoin, as taught by the Wolf and Farina, as Falder discloses that biofilms are known to form on filters and that multiple anti-bacterial and/or anti-fungal compositions may be necessary to inhibit the growth of various microorganisms, and motivated by the desire of forming a conventional anti-bacterial fabric with additional fungicidal characteristics to inhibit the predictable growth of biofilms on the fabric, as the resulting anti-bacterial fabric would predictably comprise the combined advantageous and beneficial characteristics of anti-bacterial and anti-fungal properties.

Regarding claim 66, Rohrbach teaches a filter for filtration and elimination of microbials comprising a filter selected from the group consisting of nonwoven fabric and sheets, the filter formed from fibers cut, each of the fibers previously treated with an anti-bacterial compound so that the anti-bacterial compound is integrated into all of the body and core of the fiber so that the treated fibers exhibit anti-bacterial properties, wherein the anti-bacterial compound is TRICLOSANTM, wherein the fibers are thermoplastic polymers such as polyamides, polyesters, polyolefins or combinations thereof, and wherein the filter is further defined as being constructed

from a mixture of non-woven fabrics (see entire document including column 1 line 7 to column 3 line 17, column 3 line 40 to column 7 line 5, claims 1-13, Figures 1-5). It should be noted that the TRICLOSAN™ of the prior art appears to be substantially similar to the claimed anti-bacterial compound (*see* Applicants' specification at page 24).

Regarding claim 66, the prior art teaches that the filter includes one or more layers of a fibrous media that accomplishes the actual filtration. Although the prior art does not appear to specifically teach that the filter is further defined as being constructed of at least two layers of nonwoven fabrics so as to form a sandwich of layers, it naturally flows from the teachings of the prior art that forming the filter having multiple layers, such as more than one layer, three or four or five layers, increases the thickness, strength and rigidity of the filter, in addition to increasing the filter and/or barrier properties of the filter. Additionally, the multiple layers affect the tortuosity of the filter, wherein one of ordinary skill in the art can tailor the filter properties such as the permeability of the filter by varying the number of layers. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, wherein the filter comprises three or four or five nonwoven layers, as the prior art suggests that the filter may comprise multiple layers based on the desired filtration properties, and motivated by the desire of forming a conventional filter having increased thickness, strength and rigidity suitable for the intended application.

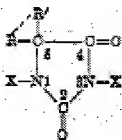
Alternatively, it should be noted that since the prior art teaches that the filter may comprise one or more layers of fibrous media, in addition to a support member, it would have additionally been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, comprising multiple layers of identical and/or

substantially similar nonwoven mats, motivated by the desire of forming a conventional filter having additional support layers to predictably increase the weight, thickness and dimensional stability of the resulting filter, based on the intended application.

Regarding claim 66, the prior art appears to suggest that the various embodiments of the prior art may additionally comprise multiple anti-microbials, as the prior art recites that the filter comprises at least one anti-microbial agent in combination (Rohrbach, column 3 line 63 to column 4 line 6). Additionally, Rohrbach suggests that anti-microbial agents include any substance or combination of substances capable of either preventing, slowing or stopping the growth and/or proliferation of any type of microbial population, such as, but not limited to bacteria, fungi and the like. The prior art does not appear to specifically teach that the filter further comprises the claimed biocide.

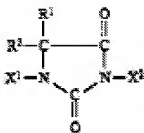
Falder additionally teaches anti-microbials which may be used in filters (Falder, paragraphs 0001-0032, 0045-0087, 0090-0101, 0250-0285, Tables 13-15). Falder acknowledges that microbial colonies replicate rapidly to form colonies, forming biofilms on any substrate surface exposed to bacteria and some amount of water (Id., paragraphs 0002 and 0003). Falder discloses that biofilms are more hazardous to health than individual microorganisms (Id.) and that biofilms can be formed by a single bacterial species, or several species of bacteria and fungi (Id.). Falder discloses and suggests that anti-microbial agents vary in their effectiveness as they are only effective against certain microorganisms (Id., paragraph 0025), which entails that their use is limited as they are not effective against all types of microorganisms (Id.).

Wolf teaches a class of fungicides comprising 1,3-dihalohydantoins (Wolf, column 1 line 16 to column 4 line 26). Wolf teaches that the fungicidal compositions comprise hydantoins of the formula:



Wherein X is a halogen such as chlorine or bromine and R and R' may comprise alkyl groups such as methyl groups (Id., column 1 line 22 to column 3 line 16). Wolf teaches that the fungicide can be applied to surfaces of cloths, textiles and woven fibers, wherein the fungicide is interspersed between the fine structure of the materials and is in intimate contact with the materials (Id., column 3 lines 17-74).

Additionally, Farina discloses a composition comprising a dihalogenated hydantoins which is used to remove or inhibit the formation of biofilms (Farina, column 1 line 7 to column 4 line 27). Farina teaches that the composition uses biocides to enhance overall biocidal control, as biocides prevent the growth of, inhibit the growth of, or kill microorganisms (Id., column 1 line 55 to column 2 line 29). Farina teaches that dibromohydantoins, dichlorohydantoins, or bromochlorohydantoins are most preferred having the formula:



Wherein R¹ and R² are independently methyl or ethyl and X¹ and X² are independently chlorine or bromine, such as bromochloro-5,5-dimethylhydantoin (Id., column 2 line 30-48). Farina teaches that any substrate susceptible to the formation of biofilms and/or growth of microorganisms is suitable for treatment with the aforementioned compositions (Id., column 4 lines 11-24).

Based on the totality of the teachings of the prior art, it would have been obvious to one of ordinary skill in the anti-bacterial fabric art at the time the invention was made to form the anti-bacterial fabric of the prior art, wherein the anti-bacterial fabric additionally comprises a biocide such as bromochloro-5,5-dimethylhydantoin, as taught by the Wolf and Farina, as Falder discloses that biofilms are known to form on filter and that multiple anti-bacterial and/or anti-fungal compositions may be necessary to inhibit the growth of various microorganisms, and motivated by the desire of forming a conventional anti-bacterial fabric with additional fungicidal characteristics to inhibit the growth of biofilms on the fabric, as the resulting anti-bacterial fabric would predictably comprise the combined advantageous and beneficial characteristics of anti-bacterial and anti-fungal properties.

Regarding claim 66, the prior art does not appear to specifically teach that the filter is used for filtration and elimination of *Legionella Pneumophila* in any installation at risk from *Legionella Pneumophila* proliferation and that the filter eliminates *Legionella Pneumophila*. However, a preamble is generally not accorded any patentable weight where it merely recites the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481

(CCPA 1951). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the prior art teaches a substantially similar structure and composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention, the invention of the prior art appears to be capable of performing the claimed intended use.

Regarding claim 66, the prior art does not appear to specifically teach that the treated fibers exhibit anti-bacterial properties at temperatures above 200°C. Although the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed anti-bacterial properties since the prior art teaches an invention with a substantially similar structure and chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber and the claimed biocide) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicants to prove otherwise.

Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the

fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

7. Claims 57, 61, 64, 65, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach in view of US Pub. No. 2003/0205137 to Bolduc.

Regarding claims 57, 61, 64, 65, and 67, the prior art appears to teach the claimed filter construction. Additionally, Bolduc teaches a substantially similar microbicidal air filter comprising a nonwoven fibrous material and reinforcing elements, wherein the fibers of the fibrous material comprise an antimicrobial agent such as TRICLOSAN™ which is fully impregnated and integral with the body of the fiber, and wherein the reinforcing elements comprise flexible or semi-flexible type screens made from aluminum, nylon, thermoplastic material, fiberglass type materials, woven fabrics or the like (Bolduc, paragraphs 0002-0021, 0034-0056). Bolduc teaches that the reinforcing elements or screens support the network and define a work area. It would have been additionally obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, comprising the reinforcing screens as taught by Bolduc, motivated by the desire of forming a conventional filter having reinforcing elements or screens to support the network and define a work area.

8. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach in view of Bolduc, as applied to claims 57, 61, 64, 65, and 67 above, and further in view of Falder, Wolf and Farina.

Regarding claim 60, the prior art appears to suggest that the various embodiments of the prior art may additionally comprise multiple anti-microbials, as the prior art recites that the filter comprises at least one anti-microbial agent in combination (Rohrbach, column 3 line 63 to column 4 line 6). Additionally, Rohrbach suggests that anti-microbial agents include any substance or combination of substances capable of either preventing, slowing or stopping the growth and/or proliferation of any type of microbial population, such as, but not limited to bacteria, fungi and the like. The prior art does not appear to specifically teach that the filter further comprises the claimed biocide.

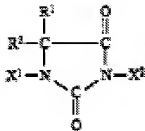
Falder additionally teaches anti-microbials which may be used in filters (Falder, paragraphs 0001-0032, 0045-0087, 0090-0101, 0250-0285, Tables 13-15). Falder acknowledges that microbial colonies replicate rapidly to form colonies, forming biofilms on any substrate surface exposed to bacteria and some amount of water (Id., paragraphs 0002 and 0003). Falder discloses that biofilms are more hazardous to health than individual microorganisms (Id.) and that biofilms can be formed by a single bacterial species, or several species of bacteria and fungi (Id.). Falder discloses and suggests that anti-microbial agents vary in their effectiveness as they are only effective against certain microorganisms (Id., paragraph 0025), which entails that their use is limited as they are not effective against all types of microorganisms (Id.).

Wolf teaches a class of fungicides comprising 1,3-dihalohydantoins (Wolf, column 1 line 16 to column 4 line 26). Wolf teaches that the fungicidal compositions comprise hydantoins of the formula:



Wherein X is a halogen such as chlorine or bromine and R and R' may comprise alkyl groups such as methyl groups (Id., column 1 line 22 to column 3 line 16). Wolf teaches that the fungicide can be applied to surfaces of cloths, textiles and woven fibers, wherein the fungicide is interspersed between the fine structure of the materials and is in intimate contact with the materials (Id., column 3 lines 17-74).

Additionally, Farina discloses a composition comprising dihalogenated hydantoin which is used to remove or inhibit the formation of biofilms (Farina, column 1 line 7 to column 4 line 27). Farina teaches that the composition uses biocides to enhance overall biocidal control, as biocides prevent the growth of, inhibit the growth of, or kill microorganisms (Id., column 1 line 55 to column 2 line 29). Farina teaches that dibromohydantoin, dichlorohydantoin, or bromochlorohydantoin are most preferred having the formula:



Wherein R¹ and R² are independently methyl or ethyl and X¹ and X² are independently chlorine or bromine, such as bromochloro-5,5-dimethylhydantoin (Id., column 2 line 30-48). Farina teaches that any substrate susceptible to the formation of biofilms and/or growth of

microorganisms is suitable for treatment with the aforementioned compositions (Id., column 4 lines 11-24).

Based on the totality of the teachings of the prior art, it would have been obvious to one of ordinary skill in the anti-bacterial fabric art at the time the invention was made to form the anti-bacterial fabric of the prior art, wherein the anti-bacterial fabric additionally comprises a biocide such as bromochloro-5,5-dimethylhydantoin, as taught by the Wolf and Farina, as Falder discloses that biofilms are known to form on filter and that multiple anti-bacterial and/or anti-fungal compositions may be necessary to inhibit the predictable growth of various microorganisms, and motivated by the desire of forming a conventional anti-bacterial fabric with additional fungicidal characteristics to inhibit the growth of biofilms on the fabric, as the resulting anti-bacterial fabric would predictably comprise the combined advantageous and beneficial characteristics of anti-bacterial and anti-fungal properties.

9. Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbach, as applied to claims 56, 57, 59, 61-65, and 67-69, in view of Foss.

Regarding claim 69, the prior art appears to teach the claimed characteristics of the fibers and/or that it would have been obvious to one of ordinary skill in the art to form the fibers with the claimed characteristics. Additionally, Foss teaches that air filters comprising anti-microbial fibers, wherein the fibers may include a blend of natural fibers, such as cotton, and synthetic fibers such as polypropylene (Foss, paragraphs 0002-0013, 0089-0120, 0145, 0147, 0167-0180, 0211-0231, 0240, 0264-0278, 0287-0298, 0369, 0370, 0398, 0399, Figure 1C). Foss teaches that the fibers can have fiber size ranges from 0.7 dTex to 25 dTex and lengths from 1.0 mm to 180

mm, or the fiber can comprise a continuous filament (Id., paragraphs 0046, 0099). Additionally, the fibers of Foss may additionally be dyed (*see for example* Id., paragraphs 0120, 0128), and fibers inherently possess a color from white to black in the color spectrum. It would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, wherein the fibers comprise the characteristics as taught by Foss, motivated by the desire of forming a conventional filter with fibers known in the art as being predictably suitable for use in filters.

Additionally, although the prior art does not appear to specifically disclose a fiber weight in the range of from 5 to 2,500 grams, it is reasonable for one of ordinary skill in the art to expect that fiber weight is based on the composition of the fiber in addition to the diameter and length of the fiber. Additionally, forming a filter with a longer and larger diameter fiber would reasonably result in a stronger, less flexible, thicker, and heavier fiber and resulting filter. Therefore, it would have been obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, and further adjusting the weight of the fiber within the claimed ranges, motivated by the desire of forming a conventional filter having the desired strength, flexibility, dimensional stability, and weight suitable for the intended application.

Additionally, although the prior art does not appear to disclose the claimed fusion point in the range of from 60° C to 450° C, the prior art teaches identical and/or substantially similar fibers as the fibers disclosed in Applicant's specification pages 29-33. Therefore, it is reasonable for one of ordinary skill in the art to expect that the claimed property naturally flows from the structure in the prior art, since the prior art teaches an invention with a substantially similar structure and chemical composition as the claimed invention. Products of identical structure and

composition cannot have mutually exclusive properties. The burden is on the Applicant to prove otherwise.

Response to Arguments

10. Applicant's arguments filed May 13, 2010, have been fully considered but they are not persuasive. Applicant argues that neither of the container members 20 or 40 can be viewed as having the anti-microbial agent "integrated into all of the body and core of said fiber," and that container member 50 cannot be considered a fibers used to make a filter. Examiner respectfully disagrees. The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain. A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. MPEP 2123.

Rohrbach teaches that the "container member" is meant to include any substance or structure that is capable of containing, retaining, housing, or supporting any type of anti-microbial agent (Rohrbach, column 4 lines 3-6). Rohrbach continues by disclosing that anti-microbial agents are preferably impregnated into, disposed on, disposed within, or contained within at least a portion of the container member (Id., column 4 lines 7-15). Rohrbach teaches that suitable container members include fibers (Id., column 5 line 1 to column 6 line 11), which can be formed into fibrous mats or sheets or webs (Id.) to form a filter (*see for example* Id., column 6 lines 12-18). Therefore, since the container members are impregnated with an anti-

microbial agent, wherein the container members comprise fibers which are subsequently formed into a filter, the prior art appears to render obvious the claimed invention.

Applicant argues that the claimed anti-microbial agent is “integrated into all of the body and core of said fiber,” and not as is found in Rohrbach designed to leach off or diffuse off easily. Examiner respectfully disagrees. As set forth above, Rohrbach teaches and suggests that the fibers are impregnated with an anti-microbial agent. Therefore, Rohrbach appears to teach or render obvious the claimed invention. Additionally, although Applicant argues that having an anti-microbial agent integrated into all of the body and core of the fiber is different from a fiber which is designed to leach off or diffuse off easily, Applicant does not provide evidence of such a conclusion. It is well-settled that unsupported arguments are not a substitute for objective evidence. *In re Pearson*, 494 F.2d 1399, 1405, 181 USPQ 641, 646 (CCPA 1974). Applicant does not provide evidence that an anti-microbial agent integrated into all of the body and core of the fiber, cannot necessarily additionally leach off or diffuse off easily, even though the fiber is similarly impregnated with an anti-microbial agent.

Applicant appears to argue that Rohrbach is silent as to the effective temperatures of the filters, whereas the claimed invention works at temperatures above 200°C. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of invention, but only that the subject matter is in fact inherent in the prior art reference.

As set forth above, although the prior art does not disclose the claimed property, it is reasonable for one of ordinary skill in the art to expect that the treated fibers exhibit the claimed

anti-bacterial properties, since the prior art teaches an invention with a substantially similar structure and chemical composition (nonwoven fabric comprising the claimed fibers and a TRICLOSAN™ anti-bacterial composition integrated into the body and core of the fiber) as the claimed invention. Products of identical structure and composition cannot have mutually exclusive properties. The burden is on the Applicants to prove otherwise.

Additionally and/or alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the filter of the prior art, wherein the fibers exhibit anti-bacterial properties at elevated temperatures, as filters are known in the art as being used and suitable for use in various environments having varying temperatures, and forming the fiber having anti-bacterial properties at elevated temperatures by varying the amount of anti-bacterial within the fiber requires only routine skill in the art.

Applicant argues that Foss does not contain a fiber with an anti-microbial “integrated into all of the body and core of the fiber.” Examiner respectfully disagrees. In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As set forth above, Foss alone is not relied on to teach the claimed fiber structure, as the prior art teaches that the fibers are impregnated with an anti-microbial agent. Additionally, although not necessarily relied upon, Foss teaches multiple embodiments of the anti-microbial fiber, including one wherein the anti-microbial additive is distributed uniformly within a yarn or fabric (Foss, paragraph 0107). Additionally, Foss teaches that the anti-microbial agents can be intermixed within the polymer during fiber formation, and

that the concentration of the anti-microbial agent can be varied within the fiber (Id., paragraph 0120), such as shown in Figure 1C. Therefore, the antimicrobial fiber of Foss appears to be within the scope of the claimed fibers.

Applicant's remaining arguments directed to Foss and Durkes are moot in view of the new grounds of rejection.

Applicant argues that unlike Bolduc, the anti-microbial agent is contained only within the network, wherein the claimed invention is contained within all fibers which make up the filter. Examiner respectfully disagrees. In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As set forth above, Bolduc alone is not relied on to teach the claimed fiber structure, as the prior art teaches that the fibers are impregnated with an anti-microbial agent. As set forth above, both Rohrbach and Bolduc are directed to filter comprising microbicidal properties, and both of the prior art references disclose and suggest the incorporation of a support structure. Bolduc is relied on to teach that it was known in the filter art to form a filter with a support structure, the support structure comprising flexible or semi-lexible type screens made from aluminum, nylon, thermoplastic material, fiberglass type materials, woven fabrics or the like (Bolduc, paragraphs 0002-0021, 0034-0056). Bolduc teaches that the reinforcing elements or screens support the network and define a work area. Therefore, it would have been additionally obvious to one of ordinary skill in the filter art at the time the invention was made to form the filter of the prior art, comprising the reinforcing screens as taught by Bolduc, motivated by the desire of forming a

conventional filter having reinforcing elements or screens to support the network and define a work area.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER Y. CHOI whose telephone number is (571)272-6730. The examiner can normally be reached on Monday - Friday, 08:00 - 15:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter Y Choi/
Examiner, Art Unit 1786